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20 April 2006For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.(54) Title: ALLOYED SEMICONDUCTOR QUANTUM DOTS AND CONCENTRATION-GRADIENT ALLOYED QUAN-
TUM DOTS, SERIES COMPRISING THE SAME AND METHODS RELATED THERETO

(57) Abstract: An alloyed semiconductor quantum dot comprising an alloy of at least two semiconductors, wherein the quantum dot has a homogeneous composition and is characterized by a band gap energy that is non-linearly related to the molar ratio of the at least two semiconductors; a series of alloyed semiconductor quantum dots related thereto; a concentration-gradient quantum dot comprising an alloy of a first semiconductor and a second semiconductor, wherein the concentration of the first semiconductor gradually increases from the core of the quantum dot to the surface of the quantum dot and the concentration of the second semiconductor gradually decreases from the core of the quantum dot to the surface of the quantum dot; a series of concentration-gradient quantum dots related thereto; in vitro and in vivo methods of use; and methods of producing the alloyed semiconductor and concentration-gra-
dient quantum dots and the series of quantum dots related thereto.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC: G01N 21/63(2006.01)

USPC: 436/524,172,2;252/301.4R,301.6S;423/409,509,566.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,306,610 B1 (BAWENDI et al) 23 October 2001 (23.10.2003), col. 5, line 65-col. 34, line 55.	1-19, 47-50, 55-59, 65-68, 73-78, 85-90, 97, 98 and 100

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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